[Medicinski fakultet u Rijeci]

Curriculum
2024/2025

[Za kolegij]

Anatomical Base of Lesions of Spinal and Cranial Nerves

Study program:	**Medical Studies in English (R)** (elective) [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Zavod za anatomiju]**
Course coordinator:	**prof. dr. sc. Zoričić Cvek Sanja, dr. med.**
Year of study:	**1**
ECTS:	**1.5**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

The main topic of the elective course is the morphological and functional characteristics of cranial and spinal nerves with a special focus on topographic relationships and the pathways these nerves pass through. On the basis of topographic relationships, the anatomical structures that can lead to their lesions will be shown, as well as the corresponding outbursts from the side of the organs that are innervated by the mentioned nerves. In addition to the morphological descriptions of the anatomical structures, the mechanisms that lead to lesions will be described and clarified (for the nn. olfactorius, anosmia and liquor will be described as symptoms indicating nerve damage in the area of the laminae cribrosae ossis ethmoidalis, for n. II, hemianopsia and other lesions on the visual pathway in terms of involvement of the optic nerve, chiasma opticus, tractus opticus and other variants, etc. to various lesions of the peripheral branches of the plexus for the innervation of the upper and lower extremities).

List of assigned reading:

Sobotta Anatomy textbook, Editor Jens Waschke, Tobias M. Bockers, Friedrich Paulsen, ELSEVIER 2015

List of optional reading:

Curriculum:

[Predavanja] list (with titles and explanation):

P1:The morphological and functional characteristic of the cranial nerves (nn. olfactorius, n. opticus, n. oculomotorius, n. trochlearis, n. abducens)

The students will be prepared for the theoretical description of the functional division of the cranial nerves so as theirs close topographical relationships . At the morphological, functional and topographical characteristics of the cranial nerves, the student will be able to conlude the origin and the topograohy of the lesions in relation to the simptoms at the periphery.

P2:The anatomical base for the lesion of the trigeminal nerve

The students will be trained to connect functionally different types of trigeminal nerve nuclei, their location in brain, their point of exit from the brainstem, their intracranial and extracranial pathway and close topographical relations and the simptoms of the lesions at the periphery.

P3:N. vestibulocochlearis and inner ear

The students will be trained to apstract the nuclei, the points of exit from the brainstem and the pathway to the bony and membranous labirinth of the inner ear. On the basis of simptoms and hearing disturbance, students will be able to recognize and to conclude where is the site of nerve lesion.

P4: Spinal nerves and cervicobrachial syndroms

The student will be able to point out the main morphological and functional characteristics of the different spinal nerves regarding the segmentation and peripheral pattern of innervation. On the basis of the simptoms regarding disturbance in motor and sensory function of the brachial plexus, the student will be able to conclude the site of lesion of the spinal nerve

P5: Spinal nerves and cervicobrachial syndroms

The student will be able to point out the main morphological and functional characteristics of the different spinal nerves regarding the segmentation and peripheral pattern of innervation. On the basis of the simptoms regarding disturbance in motor and sensory function of the brachial plexus, the student will be able to conclude the site of lesion of the spinal nerve

[Seminari] list (with titles and explanation):

S1: N. facialis. Central and peripheral lesion of the nerve

On the basis of theoretical descriptive and topographical characteristic, the students will be able to conclude which simptoms will be present in a case of central and peripheral lesion of the n. facialis.

S2: N.vagus

Identify and describe the anatomical structure of the vagus nerve.

- Students will be able to identify and describe in detail the anatomical components of the vagus nerve, including its course and branches.

S3:N. glosssopharyngeus

Define the functional anatomy of the relevant cranial nerve.

Participants will be able to name and explain the basic anatomical features of the cranial nerve, including its pathway, nuclei, and the primary functions it performs.

S4:N. opticus and vision

Identify the structures and functions of the optic nerve Students will be able to recognize the anatomical composition of the optic nerve and explain its primary functions and role in the visual process.

S5:N. VIII and auditory function

Students will be able to describe the anatomical structure of the inner ear.

- Description: Students should thoroughly detail the primary components of the inner ear and their location within the skull, as well as connect these structures with the functional aspects of the auditory system.

S6:N V

S7:N hypoglossus

Identify the anatomy of the hypoglossal nerve Students will be able to identify and describe the basic anatomical features of the hypoglossal nerve, including its course, branches, and the structures it innervates. Emphasis will be on localizing important anatomical landmarks related to the hypoglossal nerve in the context of lesions.

S8:N accesorius

Define and describe the anatomical features relevant to the nerve.

- Students will be able to identify key anatomical structures and explain their functional role in the context of the nerve.

S9:Nn. spinales

Describe the structure and function of the spinal nerves.
Students will be able to define the structure of the spinal nerves, identify their components, and explain their functional role within the nervous system.

S10:Anatomy of the vertebral complex

S11:Spinal reflexes and their disruption

S12:Sympathetic and parasympathetic innervation

Understand the basic concepts of sympathetic and parasympathetic innervation.

- Students will be able to describe the differences and similarities between the sympathetic and parasympathetic nervous systems and explain their role in regulating bodily functions.

S13:Plexus cervicalis

Identify the anatomical structures of the cervical plexus
Students will be able to recognize and name the key anatomical structures that comprise and surround the cervical plexus.

S14:Plexus brachialis

The students will learn and accepted the skills how to recognize individual nerve lesions of the plexus brachialis.

S15:Plexus lumbalis

Identify the components of the lumbar plexus

- Description: Students will be able to recognize and name the main nerves that form the lumbar plexus through the analysis of anatomical models and diagrams.

S16:Plexus sacralis

Identify the main anatomical structures within the sacral plexus: Students will be able to accurately recognize and name the key nerves and anatomical parts of the sacral plexus, providing them with a fundamental understanding of its location and function within the context of human anatomical structure

S17Spinal anesthesia

Identify anatomical structures relevant to spinal anesthesia
Students will be able to identify and describe key anatomical structures, including the spinal canal and adjacent areas, crucial for the successful administration of spinal anesthesia.

S18:Lumbal punction

Identify the anatomical structures relevant to performing a lumbar puncture

- Students will be able to identify key anatomical features, including vertebral levels, meningeal layers, and specific spaces important for safely performing a lumbar puncture.

S19Intercostal nerves

Identify and describe the anatomical structure of intercostal nerves Students will be able to identify and recognize the key anatomical features of the intercostal nerves, including their origin from the spinal cord, path, and the muscles and skin they innervate.

S20:Innervation of the back

Identify the primary nerves and structural elements that innervate the back region.

- Description: Students will be able to name and identify key spinal and cranial nerves responsible for sensory and motor functions of the back.

Student obligations:

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Other notes (related to the course) important for students:

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COURSE HOURS 2024/2025

Anatomical Base of Lesions of Spinal and Cranial Nerves

[Predavanja] (Place and time or group)	**[Seminari]** (Place and time or group)
05.05.2025	

P1:The morphological and functional characteristic of the cranial nerves (nn. olfactorius, n. opticus, n. oculomotorius, n. trochlearis, n. abducens):
• [Zavod za anatomiju - Seminarska] (16:15 - 18:20) [1600]
  ○ ABoLoSaCN
 	
P2:The anatomical base for the lesion of the trigeminal nerve:
• [Zavod za anatomiju - Seminarska] (16:15 - 18:20) [1600]
  ○ ABoLoSaCN
 	
P3:N. vestibulocochlearis and inner ear:
• [Zavod za anatomiju - Seminarska] (16:15 - 18:20) [1600]
  ○ ABoLoSaCN	

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
06.05.2025	

P4: Spinal nerves and cervicobrachial syndroms:
• [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600]
  ○ ABoLoSaCN
 	
P5: Spinal nerves and cervicobrachial syndroms:
• [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600]
  ○ ABoLoSaCN	

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
07.05.2025	

	S1: N. facialis. Central and peripheral lesion of the nerve:
	• [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600]
	  ○ ABoLoSaCN
	
	S2: N.vagus:
	• [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600]
	  ○ ABoLoSaCN
	
	S3:N. glosssopharyngeus:
	• [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600]
	  ○ ABoLoSaCN

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
08.05.2025	

	S4:N. opticus and vision: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ○ ABoLoSaCN S5:N. VIII and auditory function: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ○ ABoLoSaCN S6:N V: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ○ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
09.05.2025	
	S7:N hypoglossus: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN S8:N accesorius: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
12.05.2025	
	S9:Nn. spinales: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN S10:Anatomy of the vertebral complex: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
13.05.2025	
	S11:Spinal reflexes and their disruption: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN S12:Sympathetic and parasympathetic innervation: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ○ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
14.05.2025	

	S13:Plexus cervicalis: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ◦ ABoLoSaCN S14:Plexus brachialis: • [Zavod za anatomiju - Seminarska] (16:15 - 18:00) [1600] ◦ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
15.05.2025	
	S15:Plexus lumbalis: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN S16:Plexus sacralis: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN S17Spinal anesthesia: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	
16.05.2025	
	S18:Lumbal punction: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN S19Intercostal nerves: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN S20:Innervation of the back: • [Zavod za anatomiju - Seminarska] (16:15 - 18:30) [1600] ◦ ABoLoSaCN
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]	

List of lectures, seminars and practicals:

[PREDAVANJA] (TOPIC)	Number of hours	Location
P1:The morphological and functional characteristic of the cranial nerves (nn. olfactorius, n. opticus, n. oculomotorius, n. trochlearis, n. abducens)	1	[Zavod za anatomiju - Seminarska]
P2:The anatomical base for the lesion of the trigeminal nerve	1	[Zavod za anatomiju - Seminarska]
P3:N. vestibulocochlearis and inner ear	1	[Zavod za anatomiju - Seminarska]
P4: Spinal nerves and cervicobrachial syndroms	1	[Zavod za anatomiju - Seminarska]

P5: Spinal nerves and cervicobrachial syndroms	1	[Zavod za anatomiju - Seminarska]

[SEMINARI] (TOPIC)	Number of hours	Location
S1: N. facialis. Central and peripheral lesion of the nerve	1	[Zavod za anatomiju - Seminarska]
S2: N.vagus	1	[Zavod za anatomiju - Seminarska]
S3:N. glosssopharyngeus	1	[Zavod za anatomiju - Seminarska]
S4:N. opticus and vision	1	[Zavod za anatomiju - Seminarska]
S5:N. VIII and auditory function	1	[Zavod za anatomiju - Seminarska]
S6:N V	1	[Zavod za anatomiju - Seminarska]
S7:N hypoglossus	1	[Zavod za anatomiju - Seminarska]
S8:N accesorius	1	[Zavod za anatomiju - Seminarska]
S9:Nn. spinales	1	[Zavod za anatomiju - Seminarska]
S10:Anatomy of the vertebral complex	1	[Zavod za anatomiju - Seminarska]
S11:Spinal reflexes and their disruption	1	[Zavod za anatomiju - Seminarska]
S12:Sympathetic and parasympathetic innervation	1	[Zavod za anatomiju - Seminarska]
S13:Plexus cervicalis	1	[Zavod za anatomiju - Seminarska]
S14:Plexus brachialis	1	[Zavod za anatomiju - Seminarska]
S15:Plexus lumbalis	1	[Zavod za anatomiju - Seminarska]
S16:Plexus sacralis	1	[Zavod za anatomiju - Seminarska]
S17Spinal anesthesia	1	[Zavod za anatomiju - Seminarska]
S18:Lumbal punction	1	[Zavod za anatomiju - Seminarska]
S19Intercostal nerves	1	[Zavod za anatomiju - Seminarska]
S20:Innervation of the back	1	[Zavod za anatomiju - Seminarska]

EXAM DATES (final exam):